

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A semiconductor photo-detecting element, comprising: ~~wherein at least~~

a semiconductor substrate;

a buffer layer of ~~the~~ a first conductivity type[[,]] on the semiconductor substrate;

a light-absorbing layer[[,]] on the buffer layer;

a field buffer layer of the first conductivity type[[,]] on the light absorbing layer;

a multiplication layer[[,]] on the field buffer layer;

an etching stopper layer[[,]] on the multiplication layer;

a buffer layer of ~~the~~ a second conductivity type[[,]] on the etching stopper layer; and

a contact layer of the second conductivity type ~~formed on a semiconductor substrate in this order~~ the buffer layer, and wherein

a first field strength applied to the etching stopper layer, measured in a depth direction running through each of the layers, is lower than a second field strength applied to the multiplication layer as measured in the depth direction.

2. (original) The semiconductor photo-detecting element according to claim 1, wherein an impurity of the light-absorbing layer is the first conductivity type.

3. (original) The semiconductor photo-detecting element according to claim 1, wherein an impurity of the light-absorbing layer is the second conductivity type.

4. (currently amended) The semiconductor photo-detecting element according to claim 1, wherein,

a breakdown electrical field strength of the etching stopper layer is lower than a breakdown electrical field strength of the multiplication layer, and ~~in that~~

the first field strength applied to the etching stopper layer is lower than the breakdown electrical field strength of the etching stopper layer.

5. (currently amended) The semiconductor photo-detecting element according to claim 1, wherein,

~~the~~ a breakdown electrical field strength of the etching stopper layer is lower than ~~the~~ a breakdown electrical field strength of the multiplication layer, and ~~in that~~

the second field strength applied to the multiplication layer is higher than the breakdown electrical field strength of the etching stopper layer.

6. (currently amended) The semiconductor photo-detecting element according to claim 1, ~~wherein~~ further comprising:

a second field buffer layer of the second conductivity type between the multiplication layer and the etching layer ~~there is provided a field buffer layer of the second conductivity type which configured to~~ ~~relaxes~~ relax the field of the multiplication layer.

7. (original) The semiconductor photo-detecting element according to claim 6, wherein

an impurity of the multiplication layer is of the first conductivity type.

8. (original) The semiconductor photo-detecting element according to claim 6, wherein

an impurity of the multiplication layer is the second conductivity type.

9. (original) The semiconductor photo-detecting element according to claim 1, wherein an impurity of the multiplication layer is of the second conductivity type and has an impurity concentration of not less than 1×10^{16} (cm⁻³).

10. (original) The semiconductor photo-detecting element according to claim 1, wherein the multiplication layer is a single layer in which the ratio of elements forming the multiplication layer is constant.

11. (original) The semiconductor photo-detecting element according to claim 10, wherein the multiplication layer is a layer formed from InAlAs.

12. (original) The semiconductor photo-detecting element according to claim 10, wherein the multiplication layer has a thickness of not more than 0.3 μm .

13. (original) The semiconductor photo-detecting element according to claim 11, wherein the etching stopper layer is a layer formed from InP or $\text{In}_x\text{Ga}_{(1-x)}\text{As}_y\text{P}_{(1-y)}$ ($0 \leq x \leq 1.0$, $0 \leq y \leq 1.0$).

14. (currently amended) The semiconductor photo-detecting element according to claim 1, wherein,

the layer thickness (dm(cm)) of the multiplication layer, the impurity concentration of the second conductivity type ($N_{dm} \text{ (cm}^{-3}\text{)}$) of the multiplication layer, and the magnitude of ~~the an~~ electric field ($\Delta E_m \text{ (kV/cm)}$) ~~which relaxes the field strength applied to the multiplication layer~~ satisfy the

relationship $N_{dm} \geq k \times e_0 \times \Delta E_m / (q \times d_m)[[;]]$ (where k is the dielectric constant of the multiplication layer, e_0 is the permittivity in a vacuum, and q is the elementary quantity of electric discharge), and

the electric field relaxes the second field strength applied to the multiplication layer.

15. (currently amended) The semiconductor photo-detecting element according to claim 6, wherein,

the layer thickness ($d_m(\text{cm})$) of the field buffer layer of the second conductivity type, the impurity concentration of the second conductivity type ($N_{dk}(\text{cm}^{-3})$) of the field buffer layer, and the magnitude of ~~the~~ an electric field ($\Delta E_k(\text{kV/cm})$) ~~which relaxes the field strength applied to the multiplication layer~~ satisfy the relationship $N_{dk} \geq k \times e_0 \times \Delta E_k / (q \times d_k)[[;]]$ (where k is the dielectric constant of the field buffer layer, e_0 is the permittivity in a vacuum, and q is the elementary quantity of electric discharge), and

the electric field relaxes the second field strength applied to the multiplication layer.

16. (new) The semiconductor photo-detecting element according to claim 1, wherein the first field strength is lower at any portion of the etching stopper layer than the second field strength.

17. (new) The semiconductor photo-detecting element according to claim 1, wherein the multiplication layer reduces an electric field applied to the etching stopper layer such that the first field strength applied to the etching stopper layer is lower than the breakdown electrical field strength of the etching stopper layer.